

[54] POSITION DETECTION APPARATUS

[75] Inventors: **Buddy K. Funk**, Bountiful; **Clark L. Smith**, Salt Lake City, both of Utah

[73] Assignee: **Sperry Rand Corporation**, New York, N.Y.

[21] Appl. No.: **814,060**

[22] Filed: **Jul. 8, 1977**

[51] Int. Cl.² **G01D 21/04**

[52] U.S. Cl. **250/221; 250/222 R**

[58] Field of Search **250/221, 222, 578, 237 R; 273/54 E; 356/1, 4; 340/258 B**

[56] References Cited

U.S. PATENT DOCUMENTS

2,379,496	7/1945	Saunier	356/1
3,624,401	11/1971	Stoller	250/222 R
3,727,069	4/1973	Crittenden et al.	250/222 R
3,807,858	4/1974	Finch	340/258 B
4,040,738	8/1977	Wagner	356/1

Primary Examiner—David C. Nelms

Attorney, Agent, or Firm—John P. Dority; William E. Cleaver; Marshall M. Truex

[57]

ABSTRACT

Apparatus for detecting the position of a passive object includes a generally rectangular frame having an open interior, a source on the frame for emitting light through the frame interior from three sides thereof, a pair of linear image detectors, such as charge-coupled devices, being respectively mounted on the frame at two corners thereof being located at opposite ends of a fourth side thereof and adjacent respective opposite ends of the light source, a pair of aperture-defining devices located at the two frame corners between the detectors and the interior of the frame for configuring coincident fields of light from the frame interior for the detectors to view, and control circuitry connected to the detectors. Each of the detectors is capable of receiving its respective field of light from the frame interior and sensing interruption of light at any location within the field. The control circuitry is responsive to any interruption sensed by the detectors for determining where in the frame interior illuminated by the coincident fields of light the interruption occurred and thereby the position of the passive object which caused the interruption.

11 Claims, 5 Drawing Figures

